

Underground oil and reclamation sumps were installed between 1972 and 1978. The sumps collected PCB contaminated hydraulic oil for reclamation. Based on sampling performed beneath the building, the Department believes that leaking from the sumps has resulted in a significant accumulation of oil beneath the building.

Storm sewers were installed at the facility in 1952, were modified in 1965 and 1975, and were replaced in 1985 (eastern portion of the facility) and 1988 (western portion of the facility). Investigations of the storm sewers inside and outside of the plant discovered oils within the storm sewers and in the groundwater. Two primary interior storm sewer branches were found to contain free floating oil contaminated with PCB Aroclor 1242 at concentrations as high as 1400 ppm. Storm sewers discharged to Ley Creek via outfall 002 without treatment prior to 1985. The new storm sewers, those constructed in 1985 and 1988, do not go to the WWTP and continue to discharge to Ley Creek via Outfall 003. The old sewer system still collects PCB contaminated oil and discharges to the interceptor sumps which are part of the WWTP system.

Underground oil storage tanks were located throughout the manufacturing building. They were installed from 1972-1975 and were sealed from 1980-1983. The tanks stored PCB contaminated hydraulic oils on a temporary basis during major repairs of equipment.

Other areas of concern which will need to be addressed further in the RI/FS include the Past Landfill, the drum storage areas, the Powerhouse sump, the incinerator area and several other Solid Waste Management Units (SWMUs).

b. METRO - As of December, 1986, the facility has discharged treated wastewater from the on-site WWTP to METRO, except under emergency conditions. Sanitary waste is also discharged to METRO.

c. Other - Ley Creek was dredged in 1970 (7th North St. to Rt. 11), 1971 (7th North St. to Onondaga Lake), 1975 (Townline Rd. to Onondaga Lake) and 1983 (Townline Rd. to Rt. 11). Ley Creek Dredgings are contaminated with PCBs (1242 and 1248) and are located on GM, Onondaga County and Niagara Mohawk property. The volume of the dredgings is approximately 100,000 cubic yards. It has been determined that the GM facility has contributed to the PCBs in the dredgings. These PCB contaminated dredgings are listed on the New York State Registry of Inactive Hazardous Waste Sites as a "Class 2" site (site #7-34-044).

F. Status of Regulatory Involvement - The Department has entered into a number of consent orders with GMC. Following are summaries of these consent orders:

A February 2, 1981, Consent Order requiring the payment of a \$1,000 penalty by GM for SPDES violations at its combined 001 and 002 outfall (File No. 7-0383).

An August 7, 1985, Consent Order to address the site discharge of water into Ley Creek. For PCBs, the limits are 2.0 ppb for Aroclor 1242 and 4.0 ppb for Aroclor 1248.

An August 12, 1985, Consent Order requiring the investigation of PCB contamination in soil and groundwater in the Ley Creek area (Consent Order #9-88 [case #7-0383]; site #7-34-044).

A February 18, 1986, Consent Order requiring the payment of a \$1,900 penalty by GM for SPDES violations and requiring a groundwater investigation for solvent contamination (Index No. R7-0002-85-05; site #7-34-044).

A November 19, 1987, Consent Order requiring a field investigation program be conducted at the Ley Creek Dredgings inactive hazardous waste disposal site (Index No. A7-0129-87-09).

A June 15, 1989, Consent Order requiring the excavation and transport of PCB contaminated soils from the Meadowbrook Basin. These soils were disposed of at the facility (Index No. A7-0193-09-07). The holding pond and the lagoon (impoundments #1 and #2) were closed and covered in 1989.

A May 23, 1991, Consent Order requiring the development and implementation of an RI/FS at the Ley Creek Dredgings inactive hazardous waste disposal site (Index No. A7-0263-91-05). The Remedial Investigation has been approved and a Draft Feasibility Study has been submitted to the Department.

A June 10, 1991, Consent Order requiring a PCB removal pursuant to the implementation of an IRM at Onondaga County's sewer pipeline during the construction of the Ley Creek Service Area Improvements Project.

II. Potential Pathways for Release of Hazardous Substances to the Lake System

A. Soil and Groundwater- Four areas of groundwater and soil contamination were identified as a result of the two investigations were performed by EDI in 1985 and 1986. They are the bulk underground solvent storage tank area on the west side of the plant, the area contiguous to the wastewater treatment plant on the south side of the manufacturing building, the area north of the manufacturing plant and adjacent to the administrative building and soils in the vicinity of the outfall pipe (Outfall 003) at the northern property line. The soil in the vicinity of the Outfall 003 is likely contaminated due to the former swale (now filled) in this area that discharged into Ley Creek prior to the construction of Outfall 003.

The following provides a summary of the maximum concentrations of selected contaminants detected in groundwater and soil samples in this area. Chlorinated solvents were detected in groundwater in the areas adjacent to the Administrative Building and the wastewater treatment plant at concentrations as high as 13,000 parts per billion. PCBs were detected in soil samples collected in the vicinity of Outfall 003 at concentrations as high as 8,000 parts per million. PCBs have been detected at concentrations as high as 3.7 parts per billion and metals have been detected at various concentrations in groundwater samples collected at the facility. Groundwater flow in the shallow flow system is to the northeast toward Ley Creek. However, subsurface utilities and their backfill materials likely behave as preferential contaminant migration pathways and exert some influence on the flow of groundwater in their vicinity.

B. Surface Water

1. SPDES - From 1954 until 1963, process wastewater discharged directly to Ley Creek presumably with little to no treatment. In 1963, a WWTP was installed at the facility to treat metal plating wastewater. In 1973, the WWTP was also used, and presumably modified, to treat wastewater from the plastic injection molding process. In 1972, two outfalls, 001 and 002, were established and permitted under the SPDES and NPDES programs. Drainage from the eastern portion of the facility and the powerhouse building discharged through Outfall 001. Treated wastewater from the WWTP and stormwater from the western portion of the facility discharged through Outfall 002. Flow from the two outfalls discharged to Ley Creek through a single pipe. In 1980, a single outfall (003) was established for monitoring the flows from Outfalls 001 and 002. In addition, Outfall 004 was established to collect drainage from the facility's parking lot as well as an area upgradient of the facility. In 1986, industrial wastewater and storm water collected by old storm sewers from under the building, which continue to collect PCB contaminated oil, were redirected and discharged to METRO after treatment from the WWTP. SPDES Outfalls 003 and 004 currently discharge only storm water to Ley Creek.
2. Storm Water - A storm water sewer investigation determined that two interior sewer branches contained free floating product in them. One sample of the oil was found to contain 1400 ppm of PCB Aroclor 1242. This investigation designated five (5) areas of interior and exterior storm sewers as being contaminated with oil.

C. Air - As of 1988, file materials indicate that GMC was operating approximately 40 emission points without the required NYS permits or certificates.

III. Likelihood of Release of Hazardous Substances to the Lake System

A. Documented Releases

1. Current - The existing GMC SPDES permit provides effluent limits for PCBs to be discharged to Ley Creek via Outfall 003. These limits are 2.0 ppb for Aroclor 1242 and 4.0 ppb for Aroclor 1248.
2. Historical - Numerous spills of various contaminants from GMC have been documented. Many of the spills were cleaned up by GMC. The following is a highlighted list of spills not cleaned up:
 - a. On March 14, 1980, oil was released from the plant and had collected upstream of the plant's discharge in an ice cover. The sheen dissipated before plant personnel returned to the spill. No oil was observed at the outfalls.
 - b. On December 7, 1984, an indeterminable amount of xylene was spilled and entered Ley Creek.
 - c. On April 17, 1986, an unknown amount of hydraulic oil was released.
 - d. On October 18, 1989, sump #2 between the clarifiers was overflowing onto the roadway. It was estimated that 1000-1500 gallons were released.
 - e. In the early 1980's, GMC performed an investigation to determine the source of an oil sheen in Ley Creek in the vicinity of the facility's outfall. The results of the study identified the source as hydraulic oil from the Underground Oil Reclamation System.

B. Threat of Release to the Lake System

1. Extent of contaminants on-site - See sections II.A. and II.B.2.
2. Migration Potential of Contaminants - The migration of on-site volatile organic compounds (e.g. xylene, toluene, TCE) via subsurface utilities (and associated backfill materials) and groundwater to surface waters, such as Ley Creek and on-site drainage ditches, is likely. The migration of PCBs in the groundwater system may be enhanced by the presence of solvents in the groundwater. Metals such as nickel, copper and chromium may also be migrating in groundwater.
3. Proximity to Onondaga Lake System - Ley Creek, which borders the northern edge of the facility, flows east to west and discharges to Onondaga Lake approximately 3.5 miles downstream of the GMC facility.

Considering the migration potential of the contaminants, the available pathways for contaminants to migrate (e.g. storm sewers, groundwater and surficial runoff) and the close proximity of the facility to Ley Creek, a threat of release exists. The migration of PCB contaminated oil via subsurface (e.g. storm sewers) and surficial pathways (e.g. surface water drainage ditches) has been documented and may be ongoing.

IV. Potential for Adverse Impacts to the Onondaga Lake System Due to Release or Threat of Release of Hazardous Substances

A. Hazardous Substance Characteristics

1. Mobility -

PCBs generally have limited mobility in the environment since PCBs have a low vapor pressure and low water solubility. In addition, because of high octanol-water partition coefficients and strong adsorption to soils and sediment, significant leaching of PCBs from soils does not occur under most conditions. The presence of certain solvents does however result in greater mobility of PCBs in groundwater. PCBs adhering to sediment particles may also be mobilized by water passing over the sediments.

2. Toxicity -

PCBs have been demonstrated to cause toxicological responses including carcinogenic, reproductive, teratogenic, neurological/developmental, systemic and immunological effects. PCBs are considered probable human carcinogens based on hepatocellular carcinomas in rodent studies and inadequate yet suggestive evidence of excess risk of liver cancer in humans by ingestion and inhalation or dermal contact.

3. Persistence -

PCBs are persistent in the environment due to their high stability and relative inertness. In aquatic systems, low amounts of PCBs are found dissolved in the water column due to their low solubility and preferential partitioning to suspended matter and sediment. In these systems, PCB transport and persistence is governed by the particle transport processes. In systems such as Onondaga Lake, PCBs are expected to persist in the bottom sediments since there are no significant sediment removal processes. PCBs have been known to degrade to a limited extent via dechlorination in anaerobic sediments, but this process is limited in its ability to eliminate the majority of the PCB mass. Aerobic degradation is also known to occur, but this process is generally limited to the lightest PCB congeners. Given the relatively heavy congeners found in the two aroclor mixtures found on site (Aroclors 1242 and 1248), these natural degradation processes would not be expected to greatly affect the persistence of PCBs released from the site.

4. Bioaccumulation -

PCBs are very lipophilic and tend to bioaccumulate within living organisms. Significant levels of PCBs may often be detected in tissue of biota living in contaminated areas because PCBs adhere to the organisms lipids (fatty tissue). The higher the concentration of PCBs in the organism, the greater the potential for the organism to show toxic responses because of the PCBs.

B. Quantity of Substance

The volume of the Ley Creek dredgings requiring remedial action is estimated conservatively at 100,000 cubic yards. However, this does not include the unknown quantity of potentially contaminated sediments which remain in Ley Creek. Volumes of waste existing in the environment at the facility are currently not available, but will be addressed as part of the RI.

C. Levels of Contaminants

Information concerning the concentrations of contaminants in the environmental media are limited. However, the following information is provided regarding media which have been sampled. Oils sampled from the storm sewers contained up to 1400 ppm of PCB Aroclor 1242. The hydraulic oil, in general, used at the site contained 50-500 ppm PCB. Soils in the vicinity of Outfall 003 have been shown to contain PCBs at concentrations as high as 8,000 parts per million. The Ley Creek dredgings contain soil with PCB concentrations as high as 466 ppm, and groundwater in the dredge spoil area is contaminated with PCBs as high as 10 ppb. The analyses of groundwater samples collected from on-site monitoring wells have detected the presence of TCE, DCE, Vinyl chloride, PCBs, xylene, toluene, ethylbenzene, and various metals. The analyses of fish samples have detected PCB Aroclors 1248 and 1260.

D. Impact on Special Status Areas

Some of the Ley Creek dredgings lie in a NYS protected wetland. No other known protected habitats, streams or wetlands are in the area of the GMC facility. Ley Creek is classified as a Class B watercourse.

V. Summary of Concerns

The handling of PCB contaminated oil at the facility resulted in its release to the environment via floor drains and unlined trenches and sumps prior to the undertaking of corrective measures in 1984 and 1985.

Improper containment of wastes has been documented. Contamination, in general, appears to be the greatest in soils and groundwater surrounding and beneath the administrative and manufacturing buildings. An early 1980's investigative engineering study determined that an underground oil reclamation system was contributing PCB contaminated oil to Ley Creek and to the site grounds. Elevated levels of PCBs have been detected in soil and groundwater at the facility. Soil in the vicinity of Outfall 003 is highly contaminated with PCBs.

Spills associated with stored and piped transport of solvents used in painting and other operations have resulted in soil and groundwater contamination at a number of locations around the facility.

In 1985 and 1986, a hydrogeologic assessment, conducted by EDI Engineering and Science revealed significant contamination of groundwater on-site by solvents, PCBs,

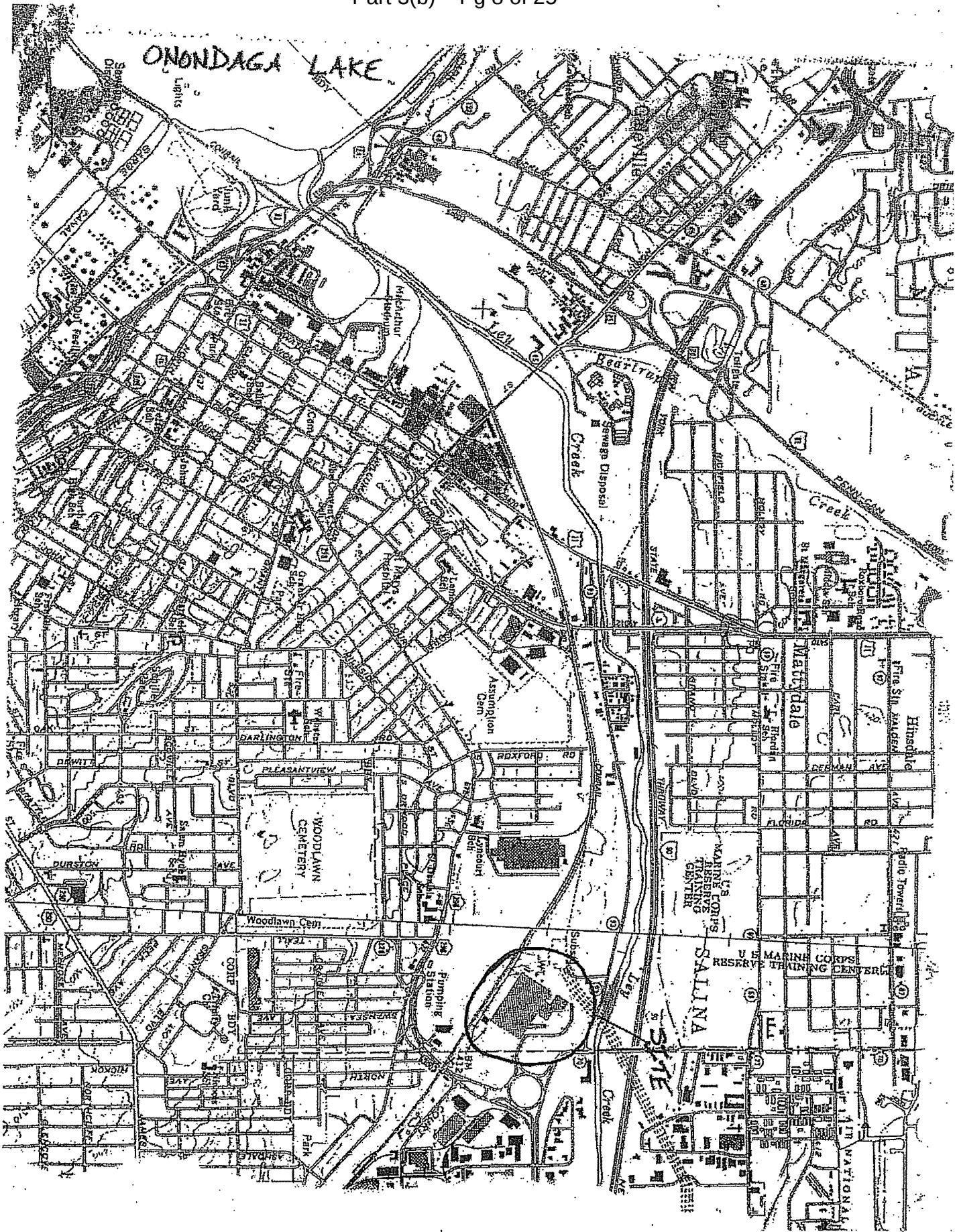
nickel and chromium. In addition, PCBs were found in soils at levels up to 8,000 ppm.

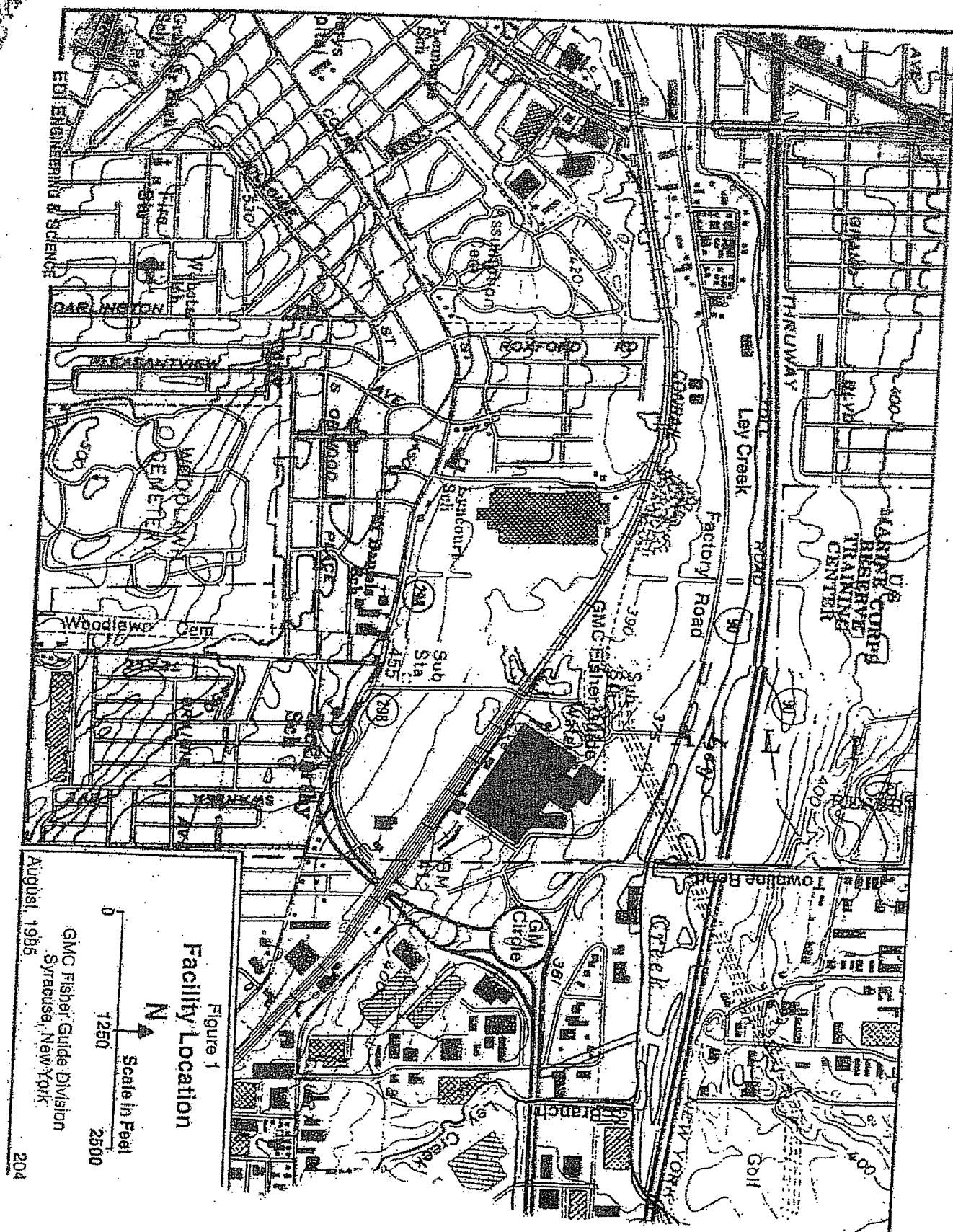
Public exposure to on-site contaminants is not likely, as the site is fenced and security is provided by GMC. Also, the surrounding community is served via public water. However, off-site releases likely contribute to contamination of biota and to the health risks associated with consuming fish from Onondaga Lake or its tributaries.

The Department has determined that the PCBs, solvents and metals existing in the contaminated media at the facility are listed CERCLA Hazardous Substances and RCRA Hazardous Wastes. The confirmed presence of hazardous substances at the facility and the proximity and known discharge of such substances to Ley Creek establishes that the hazardous substance contamination at the facility represents a release and a continued threat of release to the Onondaga Lake System.

VI. References

1. Evaluation of Plant Capabilities to Achieve Wastewater Compliance, EDI Engineering & Science, 1985.
2. Phase I Hydrogeological Investigation, EDI Engineering & Science, 1985.
3. Phase II Hydrogeological Investigation, EDI Engineering & Science, 1986.
4. Preliminary Review of Solid Waste Management, A. T. Kearney, Inc. & DPRA, Inc., 1988.
5. RCRA Facility Assessment Phase II, A. T. Kearney, Inc. & DPRA, Inc., 1989.
6. GMC 104(e) Responses.



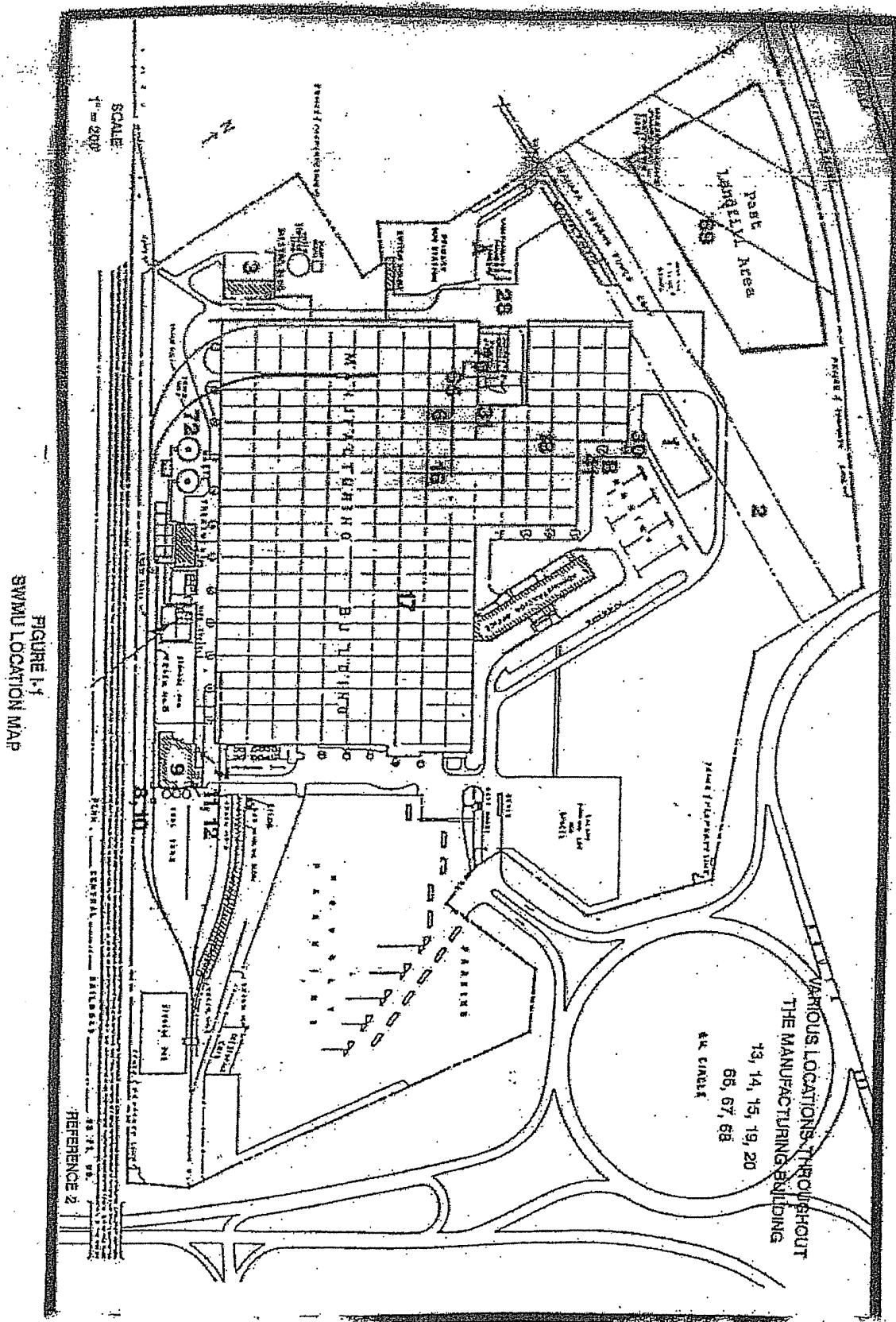


GW Fisher Guide Division
Syracuse, New York
August, 1985

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ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK

PRELIMINARY SITE ASSESSMENT TASK1

**Salina Town Landfill Site
Site Number 734036
Town of Salina, Onondaga County**

July 1992



Prepared for:

**New York State Department
of Environmental Conservation**
50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, Commissioner

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., P.E., Director

Prepared by:

Ecology and Environment Engineering, P.C.

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1. EXECUTIVE SUMMARY

The Salina Town Landfill site (Site I.D. No. 734036) is located on New York State Route 11 (Wolf Street) in the Town of Salina, Onondaga County, New York. The site, a 50-acre municipal landfill that began operations in approximately 1960, is now closed (Ref. 34). The landfill received a documented 662 tons of hazardous wastes including paint sludge, waste paint thinner, and paint reducer before its closure in 1974 (see Figures 1-1 and 1-2) (Ref. 11). In addition, an unknown amount of PCB wastes mixed with general refuse from General Motors (GM) Fisher Guide Division was buried at the landfill (Refs. 14, 16).

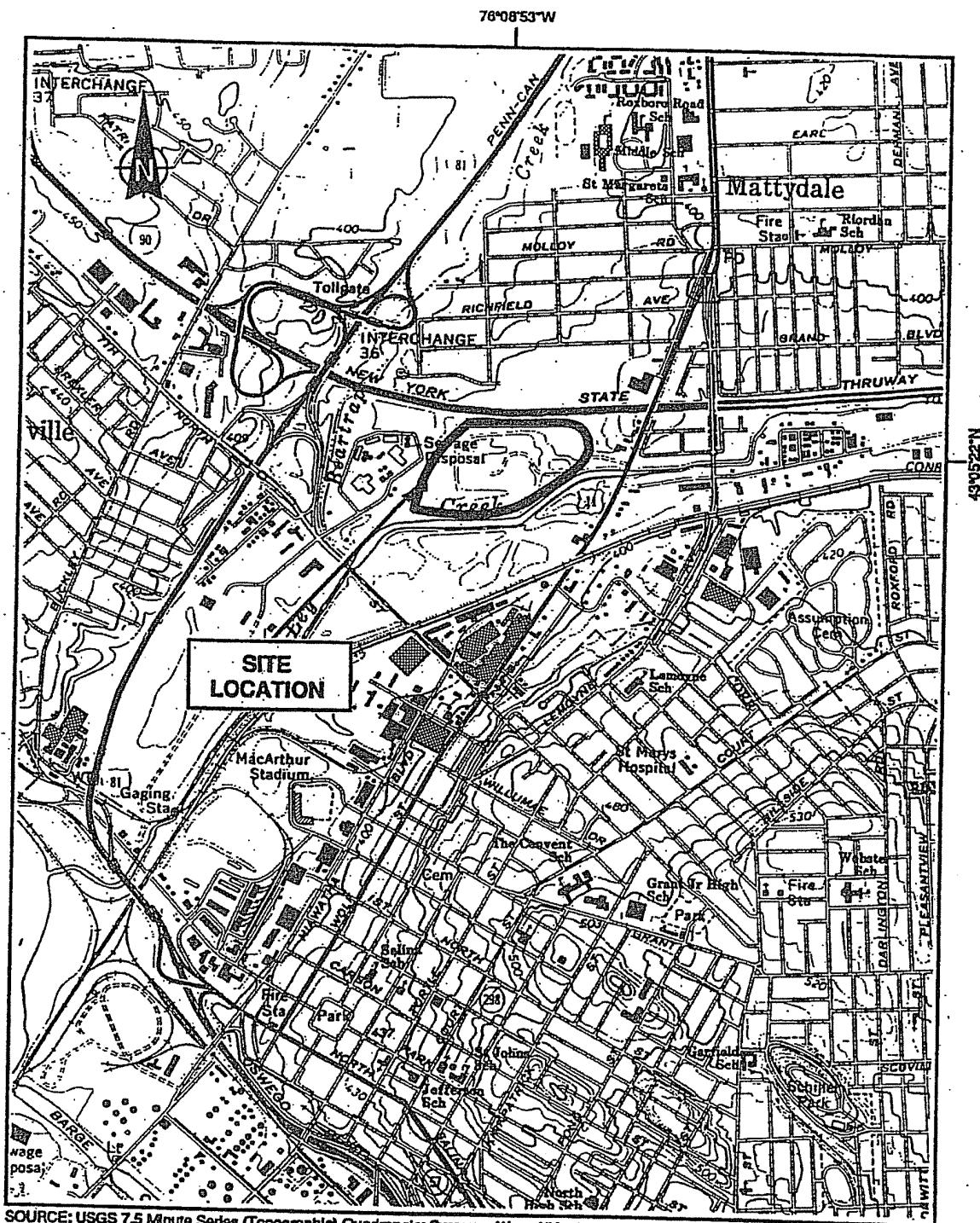
Ley Creek borders the site on the south and flows west to Onondaga Lake. Neither water body is used for drinking water supply. The New York State Department of Health (NYSDOH) has declared a health advisory against the consumption of fish from Onondaga Lake, due to high chemical levels (Ref. 10). Numerous industrial pollution sources on the lake and on Ley Creek contribute to the overall poor conditions of these surface waters (Ref. 9).

On-site sampling has been conducted by the New York State Department of Environmental Conservation (NYSDEC), Onondaga County Health Department, and NUS Corporation for the United States Environmental Protection Agency (EPA). Samples collected include surface and subsurface soil, groundwater, well water, surface water, and sediment from Ley Creek and on-site drainageways. These samples were collected in

1986 and 1987. PCBs were found in oil-saturated subsurface samples at up to 270 ppm; however, on-site surface soils were free of PCB contamination (Refs. 1, 6, 7, 8). Sediment samples along the landfill border in Ley Creek contained PCBs at up to 3.6 ppm (Ref. 2); however, PCB contamination has been identified upstream of the Salina Landfill as well (Ref. 9). Results of surface water sampling in Ley Creek upstream and downstream of the site showed no significant difference in contamination between the two locations (Ref. 1). Groundwater sampling was performed at a single upgradient monitoring well, and no downgradient wells currently exist to assess vertical or horizontal migration of site contaminants in groundwater (Ref. 6).

A site inspection by Ecology and Environment Engineering, P.C. (E & E) personnel on May 2, 1991 confirmed that a grassy cover is in place, with numerous tall, reedy wetlands vegetation areas. An unfenced frontage on Wolf Street allows public access to the site, and evidence of trespassers was observed (Ref. 29). No significant illegal dumping was observed. A small leachate outbreak on the bank of Ley Creek was observed, and some protruding waste and debris were noticed. No readings above background levels were detected using HNu and minirad monitoring. Photographs taken during the site inspection are presented in Figure 1-3.

Insufficient information exists at this time to reclassify the Salina Landfill site from Class 2a. Disposal of a significant quantity of hazardous wastes at the site has been documented. It is likely that discharges from the site contravene ambient surface water standards and ambient groundwater standards. Therefore, it also is likely the Salina Landfill site presents a significant threat to human health and environment. However, to confirm this assumption, additional surface water, groundwater, and soil samples should be obtained and analyzed.



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Syracuse West, NY, 1973, Photorevised 1978.

SCALE 1:24,000
0 $\frac{1}{2}$ 1 Mile
0 .5 1 Kilometer

Figure 1-1
LOCATION MAP, SALINA TOWN LANDFILL SITE

1-3

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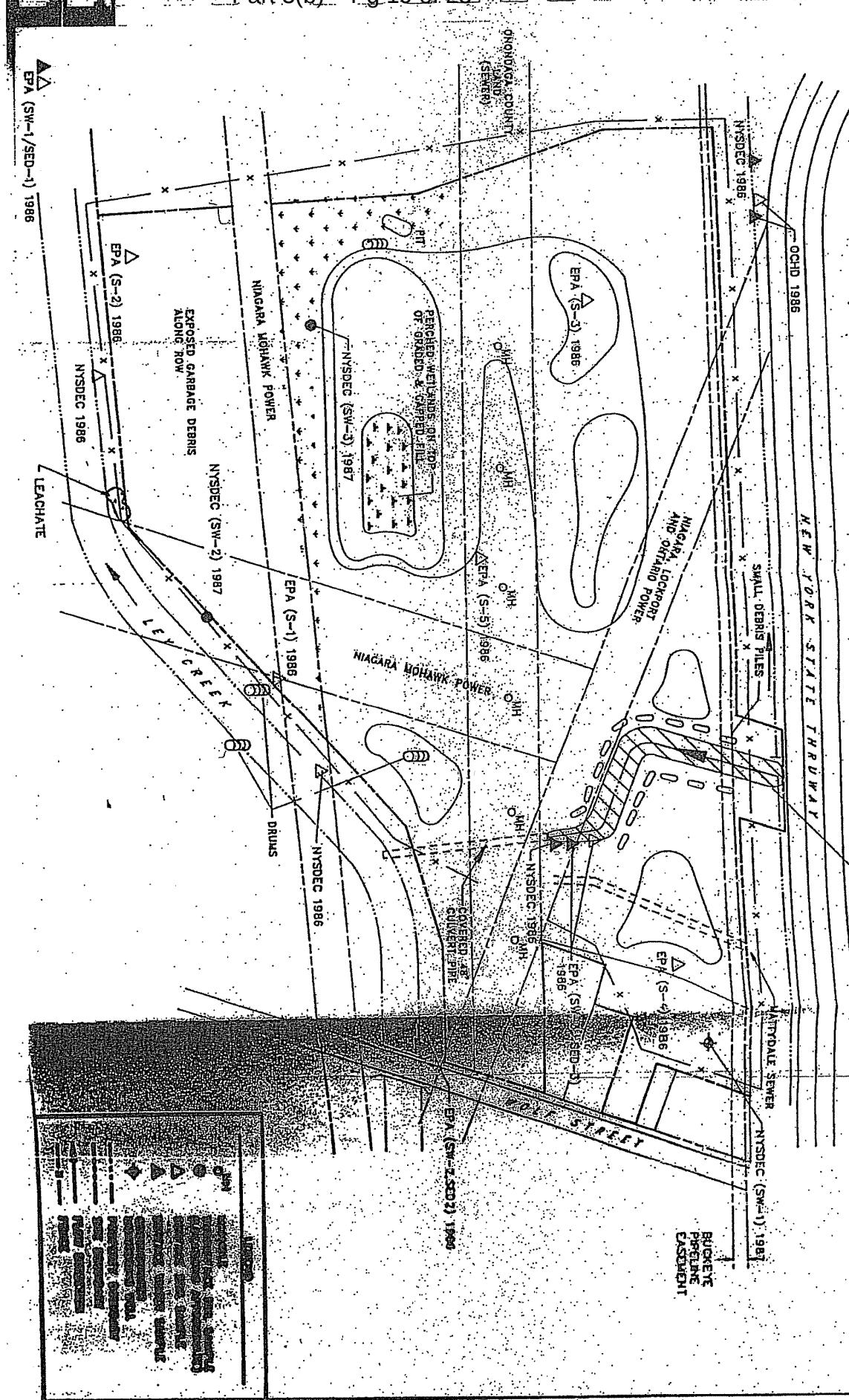
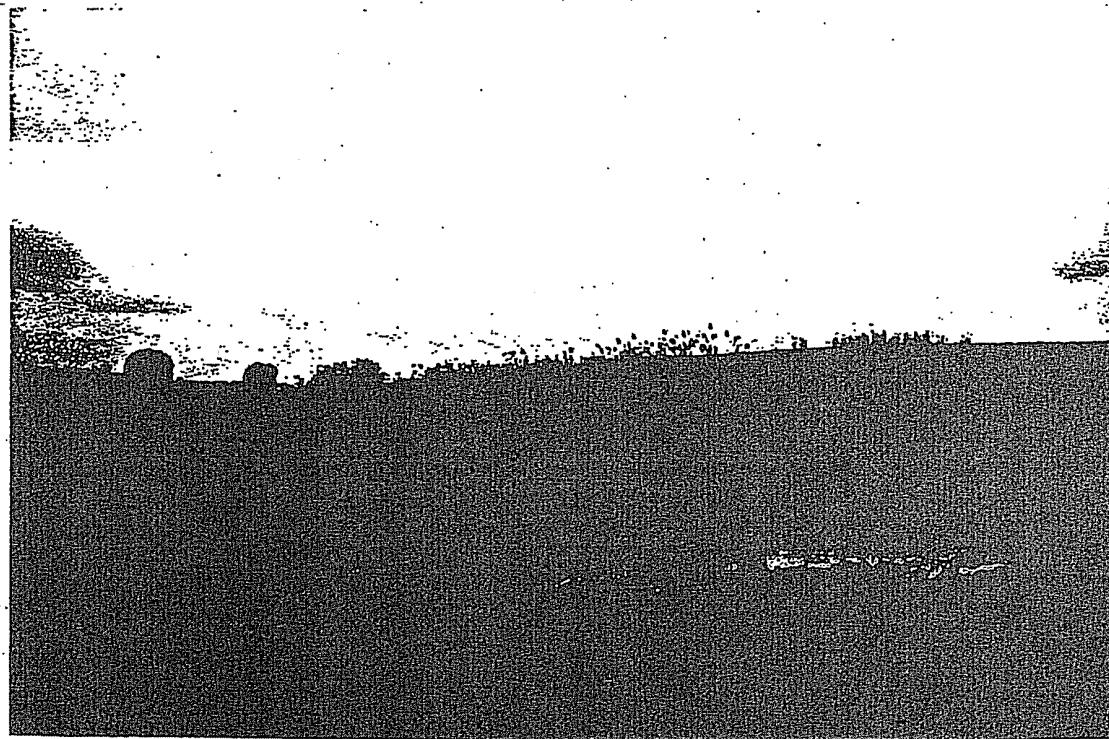


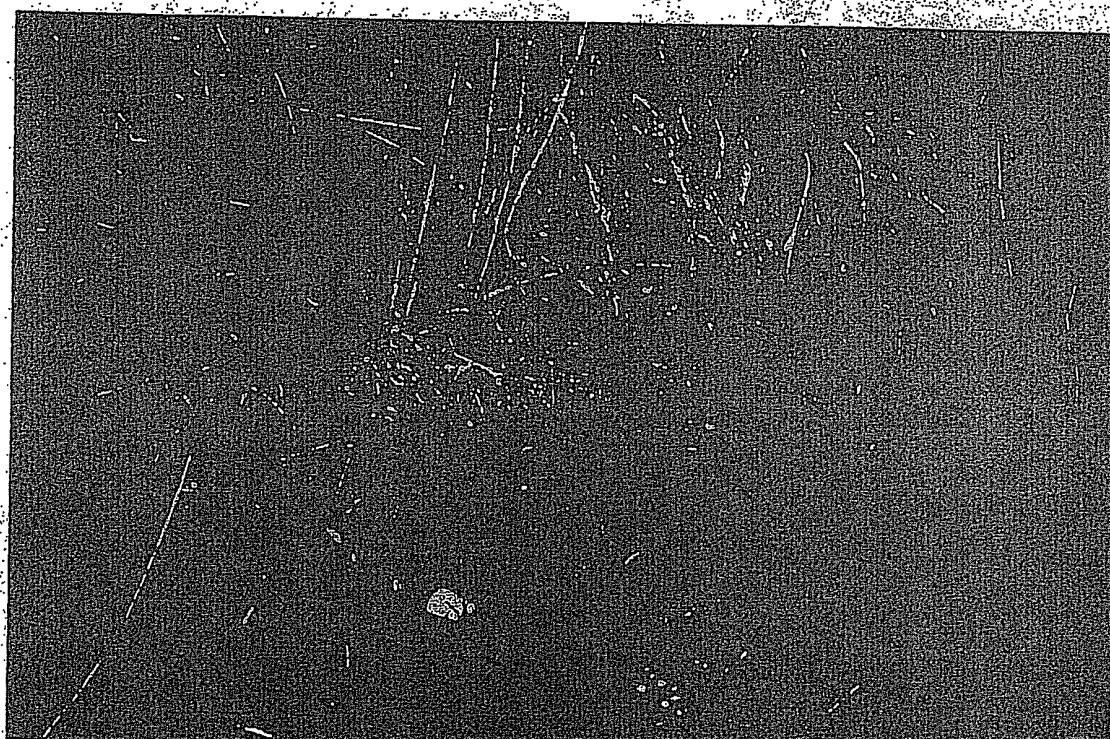
FIGURE 1-3

PHOTO LOG

Client: NYSDEC	E & E Job No.: SB5060
Site: Salina-Town Landfill	
Camera: Make Olympus Infinity Jr.	SN
Lens Type	SN
	Photographer: S. Lare Date: 5/2/91
	Time: 1100 Frame No.: 19
	Comments*: Standing near powerline ROW .
	intersection near center of site, looking west.
	Rockiness here is dirt road; shows wetlands vegetation, grassy cover, and some ponded water crossing the dirt road. (This is not part of the designed drainage ditch.) Landfill slope on site is generally as shown.
	*Comments to include location.



ecology and environment engineering, p.c.
PHOTOGRAPHIC RECORD

Client: NYSDEC	E & E Job No.: SB5060	
Site: Salina Town Landfill		
Camera: Make Olympus Infinity Jr.	SN	
Lens Type	SN	
	Photographer: S. Lare	Date: 5/2/91
	Time: 1110	Frame No.: 20
Comments*: Rust-colored liquid "seep" out of creek bank on Ley Creek, near the powerline's intersection with the stream; (facing northeast)		
*Comments to include location.		
		

4. SITE ASSESSMENT

4.1 SITE HISTORY

The Salina Town Landfill, located on New York State Route 11 in the Town of Salina, Onondaga County, New York, is a former municipal sanitary landfill. The site encompasses approximately 50 acres of land, with a frontage of approximately 300 feet on Route 11 (Wolf Street) to the east. The site is bordered by Ley Creek to the south and the New York State Thruway to the north (Refs. 22, 15).

The site was reportedly used as a landfill prior to 1956 (Ref. 34). During operation, the landfill accepted domestic, commercial, and industrial debris from the Town of Salina and vicinity. Hazardous wastes, in the form of paint sludge, waste paint thinner, and paint reducer were disposed of by GM at the site between 1962 and 1973 (Ref. 11). PCB-laden wastes in the form of oil-saturated floor absorbents, which were used to clean up coolant and hydraulic oil leaks, were mixed in with the GM plant's general refuse (cardboard, cafeteria wastes, floor sweepings, etc.), and taken to four county landfills, including the Salina Town Landfill site (Refs. 14, 16). This waste was not inventoried or tracked as hazardous waste on official waste generator documents (Ref. 14). The amount of PCB-laden wastes taken from the GM Fisher Guide Division to the Salina Town Landfill site is unknown, as is the total amount of PCB wastes generated by the company prior to the landfill closure in 1974 (Ref. 34). All available estimates of PCB-waste volume refer to the time period of 1979 to 1983, after the Salina

Town Landfill site stopped accepting wastes (Refs. 11, 16, 17). Due to the amount of industry in the town and the refuse produced, the volume of industrial waste compared to residential and commercial waste accepted at the landfill greatly exceeded the normal expected proportion (Ref. 15).

A week-long inventory in 1972 of wastes entering the Salina Town Landfill indicated that Leaseway Haulers, Inc. delivered a total of 370 cubic yards of general trash (cardboard, wood, plastic, and paper) from GM Fisher Guide Division during that week (Ref. 15). It is not known whether the trash hauled for that week contained PCB oils. General Motors acknowledges that Leaseway Haulers, Inc., as well as A&T Haulers and Mattheison Trash Service, hauled the plant's general refuse in the past (Ref. 14). A&T Haulers personnel confirmed that the GM refuse they regularly hauled to the Salina Town Landfill site was frequently saturated with oily liquids, sometimes in large volumes (Ref. 16). There were numerous incidents of non-compliance with the state sanitary landfill regulations during operation and the early stage of closure, including incidents of burning, leachate outbreaks, protruding refuse, standing water, and inadequate cover (Refs. 23, 24, 25).

The landfill stopped accepting refuse by early 1975 (Refs. 16, 20), but problems related to contractor enlistment, owner disputes, weather conditions, and other logistics delayed the completion of final grading, capping, and cover until November 1982 (Refs. 20, 21). The land, originally a large wetlands area, presently exhibits a generally grassy cover, with numerous areas of tall, reedy wetlands vegetation. Sewage sludge from the Ley Creek sewage treatment plant was used as cover on the landfill for at least a short time, ending in March 1970 (Ref. 18). The fill material used for daily cover and for landfill closure operations may have included PCB-contaminated soil, since some of the soil was obtained from the Ley Creek dredgings (Refs. 12, 13).

Twenty-nine acres of the landfill were owned by East Plaza, Inc. until 1981 when the Town of Salina purchased the 29 acres. Presently, almost

the entire site is owned by the Town of Salina, with additional easements and strip ownership parcels for utilities traversing the site. Niagara Mohawk powerline, Niagara, Lockport, and Ontario powerline, Buckeye pipeline, and Onondaga County/Mattydale sewer district lines traverse the landfill, and refuse has been landfilled under and over these utility installations (see Figure 1-2).

Three monitoring wells were scheduled to be installed in May 1987. However, at two of the drilling locations dark oily waste was encountered and prevented well installation. Therefore, just one upgradient monitoring well is located at the northeast corner of the site.

As part of the 1981 to 1982 closure activities, a new drainage ditch was constructed in addition to capping and regrading of the filled areas. The drainage ditch drains runoff from the northern portion of the site through a culvert to Ley Creek. There is potential for leachate to enter the drainage ditch.

Past sampling efforts include surface water and soil sampling by NYSDEC and Onondaga County Health Department (OCHD) in March 1986, soil, surface water, and sediment sampling by NUS Corporation for EPA in July 1986, groundwater and subsurface soil sampling by NYSDEC in May and June 1987, and soil sampling by Calocerinos & Spina Engineering, P.C. (town engineers, Town of Salina) in May 1987.

4.2 SITE TOPOGRAPHY

The Salina Town Landfill is bordered on the north by the New York State Thruway, on the east by New York State Route 11 (Wolf Street), on the south by Ley Creek, and on the west by the Onondaga County Sewage Treatment Plant.

The landfill is situated in the flood-prone area North of Ley Creek. The land was originally a wetlands area prior to landfilling operations (Ref. 26). The nearest New York State-regulated wetlands is located approximately 2,000 feet to the north (SYW-8, Class II wetland). In